ENVIRONMENTAL ASSESSMENT

CONDUCT 3-D SEISMIC
PGS Onshore

BLM

Arctic Field Office, Alaska

December 2007

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EA# AK-023-2008-03

US Department of Interior

Bureau of Land Management

Environmental Assessment

for 3D Seismic
EA# AK-023-2008-003

Preparing Office: Arctic Field Office

Project Title/Type of Action: **Conduct 3D Seismic**

Serial/Lease/Case File Number: **Serial #FF095089**

Land Use Plan: **Northeast National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement (IAP/EIS) 10/7/1998**

Applicant: PGS Onshore, Inc.

Address: 3201 C Street, Suite 403
Anchorage, Alaska 99503

Date: December 28, 2007

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Land Description

Meridian	Township	Range	Section
Umiat	1 North	2 West	20-36
Umiat	1 North	1 West	19-23, 25-36
Umiat	1 North	1 East	28-33
Umiat	1 South	2 West	1-28, 34-35
Umiat	1 South	1 West	1-11, 15-21 (excluding Umiat Airfield)
Umiat	1 South	1 East	4-6 (excluding private land)

This Environmental Assessment (EA) has been prepared to meet requirements of the National Environmental Policy Act (NEPA), and to support U.S. Department of Interior (USDOI) Bureau of Land Management (BLM) decision-making on permits required to construct and implement the proposed project. The scope of this EA includes analysis of the effects of the proposed seismic activity and alternatives.

Impacts of this type of activity have been evaluated in the Northeast Integrated Activity Plan (IAP)/Environmental Impact Statements (EIS) for the NPR-A.

1.0 INTRODUCTION

1.1 Background

On September 19, 2007 PGS notified the Arctic Field Office that they had not used last year's authorization for 3D Seismic in the Umiat, Alaska area. They requested an extension for the authorization. The Arctic Field Office requested that they submit a new project proposal for consideration. On October 24, 2007 the Arctic Field Office received the proposal request for authorization to conduct a three-dimensional (3D) seismic survey on Federal Land. The activities are requested to commence at the opening of tundra travel and continue through the 2007-2008 winter season.

1.2 Brief Description of Proposed Action

The proposed action would authorize a National Petroleum Reserve—Alaska Geophysical Permit to conduct a 3D seismic survey in the Umiat area of the North Slope of Alaska.

1.3 Purpose of and Need for Proposed Action

Purpose and Need of Proposed Action
The purpose of the proposed action is to allow the applicant to conduct a 3D Seismic Survey in support of oil and gas activities.

1.4 Decision to be Made

This EA discloses the environmental consequences of implementing the proposed action or the no action alternative to that action. The Finding of No Significant Impact (FONSI) describes the findings of the analysis in this EA. The BLM Arctic Field Office Manager is the Deciding Official. His decision and the rationale for that decision will be stated in the attached Decision

Record. Based on the information provided in this EA, the BLM Manager will decide whether to grant the summer studies authorization with appropriate mitigation measures, or whether to reject it.

1.5 Conformance with Land Use Plan

The area within which the proposed action would take place is covered by the following planning and environmental document: Northeast National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement (IAP/EIS) which was approved on 10/7/1998. The action, as proposed, is consistent with the objectives outlined in these documents. The proposed use is in conformance with current policy of the Arctic Field Office, BLM.

1.6 Scoping and Issues

1.6.1 Scoping

Internal scoping was completed for this environmental assessment. The internal scoping consisted of the following BLM disciplines as part of an interdisciplinary team: two wildlife biologists, the recreation specialist, the fisheries biologist, the archaeologist, the environmental scientist, the anthropologist, the realty specialist, and the hydrologist.

External scoping was accomplished via the posting of the proposed Environmental Assessment notification on the Fairbanks District Office website page found on the Alaska BLM State Office Web Site. No public comments have been received.

1.6.2 Issues

1) The proposed action may potentially have a negative impact to wintering fish.
2) The proposed action may significantly impact cultural resources that might be found in the area.
3) The proposed action may potentially affect non threatened and endangered avian species.
4) The proposed action may potentially affect caribou and other mammals.
5) There are documented polychlorinated biphenyls (PCBs) in the vicinity of Legacy Well #9.
6) The proposed action may result in the creation of waste.
7) The proposed action has the potential to affect vegetation resources (wetlands and riparian areas).

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 No Action

The no action alternative would be to deny the applicant's request to conduct a 3D Seismic study within the National Petroleum Reserve Alaska.

This alternative would prevent the applicants from performing necessary pre-exploration activity to locate possible sources of oil and gas. The No Action Alternative is inconsistent with the existing management policy of the Fairbanks District Office.

2.2 Proposed Action

The BLM Arctic Field Office in Fairbanks is proposing to authorize an application to conduct a 3D Seismic Study on federal lands in the NPR-A. PGS Onshore, Inc. plans to conduct a 3D Seismic Study in the Northeast NPR-A this winter. This work is necessary to locate possible sources for oil and gas exploration. The proposed action would authorize PGS Onshore, inc. to conduct a 3D Seismic Study beginning after tundra is open for entry and continuing for the winter season. The proposed start date would be after the opening of tundra travel on the North Slope. The work area will be accessed from Deadhorse via an existing winter trail.

The Seismic operations will be conducted with tracked vibrators supported by tracked cable trucks. Receivers will be placed every 110 feet and vibrator source points will be at intervals of 110 feet. The source is standard vibroseis with a frequency of approximately 8 to 110 Hz. The anticipated duration is form 8 to 12 seconds for each sweep. The duration and decibel level of the source will vary with terrain and weather conditions.

The company camp facilities will be moved every two to three days for short distances to reduce the impact on the tundra. Potable water will be transported from Deadhorse. Communications will be maintained with the base camp via a satellite system for both voice and data transmitions. All employees will be trained in the applicable stands set forth in the applicants' authorization. A Health, Safety and Environmental Advisor will be based at camp for the duration of the winter program. In areas defined as highly sensitive habitats, multiple vehicular passes will be avoided or minimized, and when possible, alternate routes will be defined.

Design Features or Mitigation –*Note the mitigation measures are correspondently numbered to match the issue that they address.* The operator will also be required to abide by the stipulations from the Northeast National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement (IAP/EIS) Record of Decision 10/7/1998, and geophysical exploration requirements of 43 CFR 3152.7 and 43 CFR 3152.6.

1) a. When operating vibroseis rigs over potential fish wintering areas (water ≥7 feet deep, ice plus liquid depth), vibroseis work should be conducted within two hours from initial to final sweep of the rigs.

b. Multiple days of vibroseis activity over potential fish wintering areas should be avoided. Given the area of permitted activity on BLM lands, these additional guidelines should not

demand a significant change in planned operations. Very few potential fish over wintering areas are present, with the exception of Colville River channel.

2) The potential impact will be mitigated by the seismic operator through consultation with a qualified cultural resource professional who has extensive experience on the North Slope, particularly within the NPR-A. The company supplied the BLM with a report written by a qualified cultural resource professional to complete this Environmental Assessment.

3) This issue is not mitigatable however, as discussed in the environmental consequences no long-term adverse impact is anticipated.

4) The possible impact to caribou would be indirect through damage to vegetation, as discussed in the environmental consequences the effect would be short-term in duration.

5) Complete avoidance of the PCB-contaminated surface soils at and down gradient of Legacy Well 9 is needed in order to prevent cross contamination of personnel and equipment, and to prevent further contamination of the environment. If there is a possibility of tracked vehicles contacting frozen soils under the snow cover, then the approximate 200-foot radius distance from Well #9 should be avoided altogether. Otherwise, a single pass over adequate snow cover with a low-ground pressure winter tundra snow vehicle should avoid contact with contaminated soils. Precautions should be employed to minimize disturbance of any petroleum-stained soils at all of the 11 former Navy well sites.

6) This issue is addressed in stipulations found in the Record of Decision for the Northeast National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement (IAP/EIS) which was approved on 10/7/1998.

7) This issue is not mitigatable however; there are no anticipated long-term adverse impacts from the potential direct impacts.

3.0 AFFECTED ENVIRONMENT

The affected environment for the area of the Proposed Action is discussed in the following document: The Final Environmental Impact Statement (FEIS) Chapter 3, for the Northeast National Petroleum Reserve-Alaska Integrated Activity Plan which was approved on 10/7/1998 and 2) the National Petroleum Reserves Production Act of 1976.

Known or Suspected Hazardous Materials Contamination or Occurrences in the Vicinity of the Proposed Action: Documentation from the U.S. Army Corps of Engineers (ACOE) exists indicating that fuel, hazardous wastes spills, or contamination have been identified within the proposed operations area. The waters and sediments of Umiat Lake have been documented to have natural oil seeps; also, numerous drums have been found at the bottom of the lake. Possible associated contamination includes petroleum products, and persistent organic pollutants (in particular, pesticides and/or polychlorinated biphenyls).

Surface soils and drilling muds contaminated with polychlorinated biphenyls (PCBs) are known to impact an area approximately 150 feet (up gradient) to 200 feet (down gradient) radius distance from the former Navy Umiat Well #9. Petroleum contamination associated with former Navy Wells 3 and 8 have also been recorded by the ACOE.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Non Threatened or Endangered Avian Species

The direct impacts of the proposed action on non T&E status avian populations are discussed here. These impacts cannot be mitigated. There would also be indirect impacts of this action on avian species through damage to vegetation. No cumulative impacts to wildlife are expected other than those incurred indirectly, again through damage to vegetation.

There would be few potential direct impacts of this activity on birds as there are few bird species present in the proposed operations area during the stated operation period (winter 2007/08). Potential direct impacts include forced movements of ptarmigan out of the path of the proposed operation and any affect these movements may have on gyrfalcons that prey on ptarmigan. There are no anticipated long-term adverse impacts from these potential direct impacts.

Indirect impacts to birds due to the proposed activity are directly related to potential vegetation damage (see Wetland and Riparian Resources section). If vegetation that is used for nesting, foraging, cover, territory defense, etc. is damaged it may not provide the same level of support for the birds. As the area of potential impact is small compared to the area available to the birds the indirect impacts to birds would be expected to be negligible.

4.2 Non Threatened or Endangered Avian Species

The Bureau of Land Management has made a no effect determination for the federally listed threatened species, spectacled eider (Somateri fischeri) and Steller's eider (Polysticta stelleri), in regard to the application for conducting a 3D seismic program during the open tundra travel period of 2007-2008 within Northeast and Northwest NPR-A submitted by PGS Onshore Inc. Although eider species may use the proposed operations area during the summer months for breeding, there would be no direct impacts to eiders since all activity would occur during the winter period when eiders are not present. All ground operations would begin only after BLM officially opens the tundra travel period and would end when tundra travel is officially closed by BLM in the spring. The only potential impact would be on habitat for these species. Potential habitat impacts would be minimal in nature.

4.3 Other Wildlife

The direct impacts of the proposed action on wildlife populations are discussed here. These impacts cannot be mitigated. There would also be indirect impacts of this action on wildlife through damage to vegetation (see below). No cumulative impacts to wildlife are expected other than those incurred indirectly, again through damage to vegetation.

This operation would traverse a portion of the wintering area for the Teshekpuk Lake caribou herd. Any caribou within the immediate area of the operation would be disturbed by this activity (i.e. ground vehicles), possibly having a negative effect on their energy balance (intake vs. expenditure). Because these animals are mobile and the operation would be short-term (passage of vehicles) in duration, it is not anticipated that any lasting adverse impacts to caribou would result under most circumstances. However, this assumption has not been tested and conditions for winter survival vary from year to year; it is possible that this disturbance could have an additive effect on natural winter mortality.

Moose, muskoxen and furbearers that might be disturbed by the operation are mobile and can move out of the immediate area, returning after the operation moves on. Impacts on these mobile species would be similar to those on caribou.

Some small mammals might be destroyed (run over), and some of their winter habitat lost (through snow compaction). However, from the perspective of their overall local populations, this should not be an adverse impact.

4.4 Fish

Potential impacts of the proposed action on fish and their habitat would be minimal. Overland travel of equipment will only occur during the winter open tundra travel season when all stream and lake crossings will be adequately frozen. The possibility of materials entering surface waters that could be detrimental to fish (e.g. petroleum products, other mechanical fluids) will be extremely low due to the timing of the operations, standard industry practices, and stipulations established by preceding NEPA documents. No water withdrawals from lakes are proposed.

There have been concerns that the use of vibroseis vehicles as the energy source for seismic exploration may be harmful to fish. In 2003, the Alaska Department of Natural Resources, Office of Habitat Management and Permitting (OHMP), in consultation with the Bureau of Land Management, North Slope Borough, community members from Barrow and Nuiqsut, and WesternGeco, conducted a study to address these concerns (Morris and Winters 2005). Results provided no evidence that vibroseis causes acute mortality or physical injury to fish that would lead to mortality or significant loss of function. The primary effect of vibroseis on wintering fish appears to be a behavioral response, swimming rapidly away from the vibroseis source. In the study, these responses reduced in intensity with several exposures over a short duration. While a

fleeing response can be energy intensive for a fish, adverse impacts to fish in a wintering area are unlikely during routine seismic exploration methodology, where fish in a particular wintering area would probably only be exposed to the noise one time as the shot line passed overhead.

4.5 Essential Fish Habitat

On October 11, 1996, the Sustainable Fisheries Act (Public Law 104-297) became law which, among other things, amended the habitat provisions of the Magnuson Act. The re-named

Magnuson-Stevens Act calls for direct action to stop or reverse the continued loss of fish habitats. Toward this end, Congress mandated the identification of habitats essential to managed species and measures to conserve and enhance this habitat. The Act requires federal agencies to consult with the Secretary of Commerce regarding any activity, or proposed activity, authorized, funded, or undertaken by the agency that may adversely affect essential fish habitat (EFH).

For the purposes of this environmental assessment, essential fish habitat means those waters and substrate necessary for salmon spawning, breeding, feeding, or growth to maturity (Magnuson-Stevens Act, 16 U.S.C. 1801 et seq). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by salmon and may include aquatic areas historically used by salmon where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species contribution to a healthy ecosystem; and spawning, breeding, feeding, or growth to maturity covers a species' full life cycle.

The National Marine Fisheries Service recognizes salmon waters cataloged under AS 16.05.870 (Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes) as essential fish habitat (BLM pers. comm.; National Marine Fisheries Service, Anch, AK; 28 Mar 2000). The most current information regarding the distribution of anadromous fish, as approved by the Alaska Department of Fish and Game, is available on the worldwide web (ADFG 2007; Johnson et al. 2004). Anadromous waters for salmon that occur within the areas of proposed action are Fish Creek (330-00-10840), Judy Creek (330-00-10840-2043), Ikpikpuk River (330-00-10900), and Chipp River (330-00-10915). Overall, Pacific salmon species are not abundant in the waters of the Beaufort Sea (Fechhelm and Griffiths 2001), and only small spawning stocks of pink and chum salmon have been identified.

Estuarine habitat that supports young salmon as they exit freshwater for life in the sea is also EFH. The estuarine zone is used primarily by juvenile salmon smolt during physiological adaptation to the saltwater environment from the freshwater. This outmigration takes place from the time the ice moves out through August.

Potential Effects: All travel and activities will occur during the winter open tundra travel season. Because adult salmon will not be present in local waters during the winter, there are no concerns regarding impacts from vibroseis. Limiting vibroseis noise over areas of free (non-frozen) water will limit exposure to any incubating salmon eggs. Given the timing of the operation, stipulations established by the of the NE NPR-A IAP/EIS ROD (USDOI 1998) and Required Operating Procedures (ROPs) C-3, C-4, and D-1 of the NW NPR-A IAP/EIS ROD (USDOI 2004) 1998 NE NPR-A Integrated Activity Plan / Environmental Impact Statement (DOI 1998), and the additional mitigating guidelines recommended to protect all fish species, impacts to essential fish habitat are unlikely.

EFH Finding: The proposed action is not expected to impact salmon or their habitat and is assigned the EFH determination: *Not likely to adversely affect*, and no further EFH consultation is required.

4.6 Vegetation Resources, Wetlands, and Riparian Areas

Seismic exploration and associated overland travel would occur in winter only, when the ground is frozen and covered with snow. The impacts to tundra vegetation, including wetland and riparian areas, and the underlying soils vary with vehicle type, vegetation type and snow conditions. Low ground pressure, wheeled or rubber-tracked vehicles have less impact than steel-tracked vehicles or sleds on skids. Usually, less impact would be expected in the wetter tundra where the effect, if any, may be the compression of snow and dead matter leaving "green trails" visible for one to a few growing seasons. Travel over low shrubs could cause plants to be broken, and travel over tussocks sometimes results in scuffed or crushed tussocks.

In a study of seismic exploration trails in the Arctic National Wildlife Refuge, one to two years after a seismic survey the disturbance level to the affected tundra under seismic lines was little to none on 11% of study plots, low on 64%, medium on 23% and high on 2%. After 8-9 years, recovery had reduced the disturbance level to little or none on 97% of study plots, and no areas of medium or high disturbance remained. The tundra under camp-move trails (a much smaller total area) showed greater impacts. On camp-move trails the disturbance level to the affected tundra was little to none for 22% of study plots, low for 52%, medium for 24% and high for 2%. After 8-9 years, recovery had reduced the disturbance level to little or none on only 85%, with low on 10%, medium on 4% and high disturbance on 1% of the area.

In a similarly designed but more recent study in the NPR-A, during the summer immediately following a seismic survey, the disturbance level to the affected tundra under seismic lines was little to none on 68% of study plots, low on 32%, medium on 0% and high on 0%. After 6 years, recovery had reduced the disturbance level to little or none on 96% of study plots and low on 4%. On camp-move trails the disturbance level to the affected tundra was little to none for 17% of study plots, low for 17%, medium for 43% and high for 23%. After 6 years, recovery had reduced the disturbance level to little or none on 37%, with low on 43%, medium on 13% and high disturbance on 7% of study plots. The difference in results between this and the Arctic Refuge study may be due to some combination of different landforms sampled, variation among observers, and some change in equipment technology in the intervening years.

Thus, seismic exploration may vary from having no observable effects in some situations to damaging vegetation to the extent that it may take years or even decades to heal. These impacts occur despite existing stipulations on operations and cannot be further mitigated given the types of equipment currently used.

4.7 Potential Impacts of Petroleum Products and Hazardous Wastes

Since the operations period is limited to winter conditions, frozen ground and snow cover will serve to limit the infiltration of contaminants into the soil, and/or surface waters. All stipulations included in the 1998 NE NPR-A IAP/EIS apply to this operation.

4.8 Potential Impacts of Human and Solid Wastes

All stipulations related to Human and Solid Wastes included in the NE NPR-A IAP/EIS should adequately mitigate any negative impacts, and thus should be applied to this proposed action.

4.9 Critical Elements

The BLM is required to assess whether impacts to certain critical elements of the human environment could occur under the alternatives. The following table indicates which elements are not present and which would have no impact and therefore will not be further discussed in this EA. The elements that could be impacted will be discussed in the alternatives, in addition to other issues raised during scoping.

NEPA Critical Elements		
	Yes/No	Yes/No
ACEC's	No	
Air Quality	No	No
Cultural	Yes	Yes
Farmland,Prime and Unique	No	
Floodplains	No	
Environmental Justice	No	
Native American Religious Concerns	No	
T&E Species	No	
Waste, Hazardous & Solid	Yes	Yes
Water Quality	No	
Wetland/Riparian	Yes	No
Wild & Scenic Rivers	No	
Wilderness Values	No	

Other Resource Values

Other Resource Values	Affected? Yes/No	Mitigated? Yes/No
Fisheries Habitat	Yes	Yes
Land Status	No	
Paleontological	No	
Subsistence	No	No
Visual Resources	No	
Wildlife Resources (non T&E) Mammals	Yes	No
Wildlife Resources (non T&E) Avian	Yes	No

5.0 CONSULTATION AND COORDINATION

5.1 Agencies, Organization, Persons Consulted

Public notification of the Environmental analysis will be on file at the Arctic Field Office and available on the Arctic Field Office Environmental Assessment web site.

5.2 List of Preparers

Name	Responsibility
Donna L. Wixon	Natural Resource Specialist
Susan Flora	Environmental Scientist
Stacie McIntosh	Anthropologist
Mike Worley	Realty Specialist
Richard Kemnitz	Hydrologist
Matthew Whitman	Fisheries Biologist
Dave Yokel	Wildlife Biologist
Debbie Nigro	Wildlife Biologist
Mike Kunz	Archeologist

6.0 ANILCA REQUIREMENTS

Section 810 Subsistence Evaluation
This proposed action will not significantly restrict subsistence uses. No reasonably foreseeable and significant decrease in the abundance of harvestable resources or in the distribution of harvestable resources, and no reasonably foreseeable limitations on harvester access will result from the proposed action (see ANILCA section 810 Evaluation within this case file).